History Taking

Date 2nd Dec. 2022

N	Name	P	Past
F	Father's Name	A	Allergies
A	Age	M	Medicine
M	Marital Status	H	Hospitalization
E	Earning Source	U, G	Urogynae P-P-P
D	DOA	S	Surgery
A	Address	F	Family
M	MOA	O	Occupational
		S	Sexual
		S	Socioeconomic
		T	Travel/Trauma/Tx
		V	Vaccination
		F	Functional Status

P/C

ODIPARA-V

- Onset/Duration/
- Intensity/Progression/
- Aggravating + Relieving/
- Associations/Variation

D/D

CARE

- Complications/Associations/
- Risk factor/Etiology

Tx — Investigation uptil now

Rx — Treatment uptil now.

Functional Status: Physical, Mental

SHORTNESS OF BREATH.

Date 5th Dec. 2022

COPD

D/D:

- Pneumonia – High grade fever
- Asthma – PND, Wheezing, Seasonal variation, Diurnal variation.
- TB, Malignancy.
- Bronchiectasis / lung abscess → foul smelling, effect of posture
- ILD → Farm, Pets, Rx, chemo, Factory
- → Cardiac – MI, HF, valvular ← Long, IM injection/month, IV Drug, Dental Extraction
- → Blood – Pale, Blood loss
- Chronic Thromoembolism
- Renal – ↓ urine output, periorbital puffiness, blood / frothy urine
- Neuro – weakness, dysphagia, fluctuating weakness.
- Thyroid
- Auto Immune – RA, SLE, Dermatomyo, Sarcoid, Systemic sclerosis, Granulomas
- DCLD

* Paraneoplastic Questions:

- Cushings / SIADH / Lambert Eaton

Pharmevo

Date

C.A.R.E for COPD:

Risk Factors / Etiology:

- Smoking – Duration, Quantity, Any other addiction — Know side effects, Tried to Quit ever.
- Biomass fuel exposure
- Passive Smoking
- Chronic smoke / dust / fume exposure.
- α1 antitrypsin deficiency → Past history or family history of liver + lung disease + jaundice

Complications:

- Cor. Pulmonale
- Polycythemia — گردن کی نسیں پھول جانا، Tinnitis, Redness of skin, Blurring of vision.
- CO_2 narcosis
- Repeated chest Infections
- ICU admission, Vent.
- Steroid side effects.
- Resp. failure / LTOT

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Date

D/D of COPD
- Chronic Persistent Asthma
- Fungal infection
- ABPA
- Cardiac asthma

Emphysema:
- Centriacinar — Smokers
- Panacinar — α-1 antitrypsin

- Pack Year:

$$\frac{\text{No. of cig./day} \times \text{Total years.}}{20}$$

- GOLD CLASSIFICATION:-

I	≥ 80%	III	30-50%
II	50-80%	IV	< 30%

Date

A - Ventoline
B -
C - Tiovair
D - " , Soclide or Tiovair F

Pulmonary Rehab:
- Chest Physio
- Walking
- Aerobic Exercises
- Breathing Exercises

- Roflumilast
- Theophylline
- Antibiotics → Azithro 500 mg alternate day

- Intermittent NIV: at least 6 hours. 4 hours in the day; 2 hours at night

- Mechanical Vent:
  - ↑ R/R
  - ↓ PEEP

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Date

- Bullectomy → when bulla > 30% of lung volume

- Indications of lung Transplant.
- Air travel –
- Indications of LTOT

- 60 mg/kg once weekly IV
  ↳ Rx of α1 anti trypsin deficiency.
- Prognosis of COPD
- Types of Inhalers.
  - Soft Mist Inhalers
  - Meter Dose
  - Dry powder
  - Nebulizer

→ New LAMA Drug → Revifenacine → Act on M3 Receptors.
→ Aclidinium, Omaclidinium →
→ BODE Index
* Fundoscopy → Papilledema in CO_2 narcosis.

SOB

ASTHMA.

Date 6th Dec. 2022

- PND
- Skin allergy
- Seasonal/Diurnal variation
- Family hx of inhaler use.
- Chest tightness
- Wheezing

C.A.R.E :

- Family hyo of asthma/inhaler use.
- Pollen/house dust/skin allergy/allergic Rhinitis
- Obesity/Occupational Exposure of dust, fumes
- Exercise/Drugs/Occupational worsening/Catamenial

Complications:

- Cyanosis, Bodyswelling, engorged neck veins. Repeated chest infections, Drowsiness, Early morning headache
- Steroid side effects.
- Pneumothorax/Chest Intubation
- Mechanical vent.

Associations:

- CSS → Rash, Numbness, Tingling, Joint Pain
- ABPA → Inhaler Resistance/Hemoptysis
- Carcinoid → Diarrhea, Abd Pain, Flushing

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Date

Past history:

- Inhaler / Medications / Side effects
- ER visits / admissions
- Hakimi Meds

I would like to do:

- Fundoscopy → Papilledema
-

- Vitals
- GPE: clubbing, Flaps, bruising, nicotine stains, myopathy, anemia, Thrush, JVP, LN, Pedal edema
- Chest.
- CVS: Apex beat, P2, Parasternal heave
- Abd: Ascites, Striae
- Limbs: Neuropathy, Myopathy

Date

. D/D:

- Chronic persistent asthma
- ABPA
- Last → COPD

. Reversibility:

≥ 12 % FEV1
200 ml FVC

. PEF meter:

< 20 % change - Normal

. Dosage of Steroids:

Budesonide	< 400	low dose
+ Formoterol	400 - 800	Medium
	> 800	High dose
Formoterol	< 100	
+ Beclomethasone	100 - 500	
	> 500	

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Phenotypic assessment:

Date

- Allergic : IgE
- Eosinophilic : Sputum, Eosinophils.
- Non Eosinophilic.

$MgSO_4$: 2gm in 100 ml Saline over 20 min

- Association of covid & Asthma
  - No ↑ risk of covid
- Pregnancy and Asthma.
  - All medications safe.
  - NVD
  - Can breastfeed.

Ventoline: 1ml = 500 mcg (micro)
Spiriva: 2ml = 250 mcg "
Clenil: 2ml = 800 mcg "

Date

ABPA

- Allergic
- Chronic
- Invasive.

IgE levels

>1000	Rx
500-1000	Fup 6Month
<500	Fup yearly

Response 35-50% Reduction
Remission - No attack in 3 months after stopping Rx
- 35-50% Reduction
Relapse Double

Spiriva BID – 16 wks
QD – 16 wks
Steroids – 3-6 ~~months~~ wks

Cystic Fibrosis : IgE level > 500 consider ABPA

COUGH AS TUBERCULOSIS

Date 9th Dec. 2022

D/D of cough:

- URTI: Flu, sore throat, PND
- Asthma: variation, wheezing, atopy
- GERD: Retrosternal burning, oral regurgitation
- ILD: Farm, Factory, birds, Chemo, Radio
- Sarcoidosis
- Malignancy: hoarseness, wt loss
- Drugs: ACEI, β-blockers
- Heart failure

Productive

- Pneumonia
- Tuberculosis
- Bronchiectasis
- Lung Abscess — Alcohol, chronic steroid use, ALOC, fits (weakness), Poor dental hygiene, IV drugs, Chemo or known Ca
- AI - Joint pain, oral ulcers, Photosensitivity, Rash

Chronic Bronchitis.

Date

CARE:

- TB contact — Timing, hx, sputum (+) → (-), Pt not tested or treated.
- Overcrowded area
- Poor Ventilated area
- TB Specific Systemic R/V

CNS: Altered Sensorium, Fits, Paralysis, headache

Skin: Rash, Erythema Nodosum (↑ lying flat, ↓ leaning forward) — کھڑا ہونے سے درد کم ہو جاتا ہے

CVS: Chest pain

Abdomen: Distension, Ascites, Loose stools, Abd pain

GUTB: Hematuria, kidney issue

Polls: Backache, leg weakness, numbness

Adrenal: Orthostatic Hypotension, ↓ sugar, ↑ pigmentation.

Rx:

- ATT — ایسی گولیاں جو تپ دق کے 3,4 گولیاں کھائی ہوں، کوئی ایسی دوا جس سے پیشاب کا رنگ تبدیل ہوا ہو۔
- Numbness, ↓VOP, visual disturbance, Joint pain, hearing impairment, jaundice, Vomiting, Epigastric pain.

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Date

Examination :

- Darkening of skin creases.
- Cricosternal distance.
- Gut sounds
- Pericardial rubs.
- Cranial Nerves
- Sensory / Motor neuropathy
- Spine — Gibbus.
- Orthostatic Hypotension
- Fundoscopy.

VIVA

- CBC
- LFTs, RFTs → to choose & adjust dose of ATT.
- ESR
- Sputum AFB smear & c/s, GeneXpert
- CXR
- Bronchoscopy
- Urine Lipoarabinomannan assay. (CAM)
  ↳ if Smear ⊖

Date

- Types of Mycobacterium
- Transmission : Droplet
- Pathogenesis

- Primary Focus (Golens Complex)

Reactivate —

- Latent TB → 5-10% in 10 year convert to active TB
- 1 untreated pt can transmit to 20 ppl.

Risk /
- HIV pts — 40% Risk of TB
- DM pts — 5% Risk of TB
- Structural damage.
- High Risk Environment /

- BCG - live attenuated vaccine.
  10-15 yr protection — only 70% population

- Pulmonary : lung parenchyma
  Extrapulmonary : pleura, lymph nodes, others/sites.
  Miliary : miliary mottling - disseminate in blood.
  Disseminated : 1 or more structure

Date

Steroids:

- Adrenal - Pericardium - Neuro.

- Presumptive TB: >2 wks of cough or s/s of TB

- Definite TB: proven TB or started TB.
  case

- Sputum for AFB Smear report → @ within 1 day.
  Yield of 1st Sample - 80%.
  2nd - 15%.

Interpretation of 1+, 2+, 3+ AFB report.

Oil Emmision field → No AFB seen

100 — " — field → <10 AFB count as number

— " — → 10-100 AFB 1+

Per oil Emmision field → <10 2+

→ >10 3+

- C/S medium: Lowenstein jenson medium
- Procedure of Ziel Nelson Staining.

Date

- Gene xpert – report < 2 hours.

- ADA levels > 40
- False +
  check Ratio of ADA1/Total ADA < 0.42 – TB

- Mycodot → Obsolete test.

℞ 12th Dec. 2022

- 2HRZE 4HRE
- If INH Resistance:
  2HRZE 4HRE old guidelines
- Dosage:
  - 5 mg/kg/day INH
  - 10 mg/kg/day Rif
  - 15 mg/kg/day Ethambutol
  - 20-25 mg/kg/day PZ

(Same in adults & children)

- DOTS: Directly observed therapy (short course)
- V-DOTS: Video assisted - DOT.
- Brand: Mypin HRE | Mypin-P HRE-Z | Mypin Forte HRE-Z FDC 75/150/400/275

Pharmeva

Date

- F/up:
  - Ideally every month
  - Otherwise after 2 months

Assess: Symptoms Improvement
Weight changes
X-ray ± (Not a marker of improv.)
Sputum AFB smear & C/S

(+) (−)

DST (Drug sensitive Test)

(S) (R)

Continue c continuation phase & check again at the end of 5½ Month.

Switch to MDR TB.

- Continue c continuous phase Rx & wait for C/S

AFB @ the end of 5½ Month.

Dosage:

For every 18 kg one tab in intensive Phase.

< 38 kg — 2 Tablets
38–55 kg — 3 Tablets
55–70 kg — 4 Tablets (4 Tab in 55 kg & 70 kg)
> 70 kg — 5 Tablets.

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Date

RETREATMENT REGIMEN:

New Regimen: 6 Months HRZE + Levo 250 mg'
if sensitive to HR and FQ.
if resistant to Levo → 6 Months HRZE

Old:

3HRZE 5HRE

Obsolited → 2HRZE-Streptomycin
1HRZE
5HRE

Duration of Rx:

- CNS, Bone, Miliary — 9–12 Months
  Intensive phase same
  Continuation phase prolonged 7–10 Months

MDR-TB

- INH + Rif resistance only.
- Rif resistance only.

GROUP A
- FQ
- Bedaquiline
- Linezolid

GROUP B

GROUP C

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Date

HOW TO MAKE MDR REGIMEN:

- All 3 drugs of Gp A
- 1 drug of Gp B

OR

- 1-2 from gp A
- 1 from gp B
- To complete take from gp C.

Shorter regimen:

9 months to 1 year

Intensive Phase 4-6 months (Till sputum ⊖)

Then continuation phase for 5 months

Bedaquilline given for initial 2 months only.

Longer Regimen:

Intensive phase 6-8 months

Continuation phase 12 months

Total duration 18 months.

SHORT REGIMEN	LONGER REGIMEN
• Extensive TB ⊖	• Miliary / Extensive / CNS TB
• Pregnancy ⊖	- Pregnant
• Child > 6 years	- Child < 6 years
• CNS TB ⊖	

Date

XDR-TB :

- INH + Rif, FQ, 1 additional drug from Gp A or injectibles.
- BPAL — 6-9 months (26 wks a/c to Medscape)
  Bedaquilline, Pretomanid, Linezolid.
- Rx in Pakistan:
  A: Bedaquilline, linezolid
  B: Clofazimine, cycloserine
  C: To complete 7-8 drugs
  (Ethambutol, Dalamanid, PZ, Meropenem / Imipenem, ethionamide, PAS)

DURATION:
20 Months to 2 years
(18 months after sputum ⊖)

ISONIAZID RESISTANCE:

6 RPZ-Levo

4 months after c/s conversion.

LATENT TB:

- Don't treat in Pakistan b/c of economic burden.
- Should be treated.
- 6 months Isoniazid
  3 months Isoniazid + Rifampicin

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Date

CKD & TB Rx:

- > Stage 3 – Renal adj. for Z & E (full dose on alternate days)
- No adjustment for INH & Rif.

DLD & TB Rx:

- Child C. – No Hepatotoxic Regimen → SLE
  - Streptomycin, Levo, Ethambutol 18-24 M

- 1 Hepatotoxic Regimen → SHE/HE
  - 2 Streptomycin, Isoniazid, Ethambutol
  - 10 9NH, Ethambutol

- 2 Hepatotoxic Regimen → HER
  - 9 Isoniazid, Ethambutol, Rifampicin.

DRUG	SIDE EFFECTS	Rx
• INH	Neuropathy, Hepatotoxicity	Pyridoxine 50mg
• Rif	Hepatotoxicity, Rash, Thrombocytopenia	
• Ethambutol	Optic Neuritis	Stop Drug, steroids, IV
• PZ	Hyperuricemia, Hepatotoxicity	

Date

DRUG	DOSE	SIDE EFFECT
• Streptomycin	1 vial = 1 gm Dose 15 mg/kg Route IM	Ototoxicity Nephrotoxicity Teratogenic
• Levofloxacin	750 mg¹	Tendon Rupture
• Moxifloxacin	400 mg¹	"
• Bedaquiline Inhibits bacterial ATP synthesis	100 mg Tablet • 400 mg¹ – 2 weeks • 200 mg¹ – 22 weeks	• Not given in children • Prolong QT • Nausea/Headache
• Linezolid	600 mg¹⁻²	• Thrombocytopenia
• Clofazimine	100 mg¹ Capsule	• Skin Pigmentation
• Cycloserine	10-15 mg/kg 250 mg Capsule 2-4 Capsules	• Seizures
• Meropenem	1 gm³ IV	
• Amikacin	500²–1 gm¹ IV	• Nephrotoxicity
• PAS (Sachet)	4 gm³	
• Ethionamide	250 mg Tablet 15-20 mg/kg	• Hypothyroidism
• Delamanid Inhibit cell wall mycolic acid synthesis	50 mg²	• Prolong QT interval
• Pretomanid 1"	200 mg¹	• Peripheral Neuropathy • Deranged LFTs

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Date

TB & HIV:

- Start ATT; after 2-8 weeks start Antiretroviral Rx!
- If already on anti-HIV meds then diagnosed TB → start as early as possible.
- If on Protease Inhibitors → give Rifabutin instead of Rifampicin.

OCP and TB Rx:

Higher dose of OCPs or alternate way of contraception.

TB PROPHYLAXIS:

HIV Infection, Immunosuppressive meds, anti TNFα inhibitors → check for latent TB.

STEROID INDICATIONS IN TB Rx:

- TBM
- Pericarditis
- Adrenal
- Epididymitis
- IRIS

SURGERY IN TB:

- Hydrocoph
- Pericardial effusion
- Lung Resection in localized
- Rib Resection in old cases

Date

TB & SMOKING:

- Smoking → 20% risk ↑

WHEN TO STOP ATT d/t SIDE EFFECTS:

Jaundice	Deafness
AKI	Optic neuritis
Skin Rash	Vomiting & < Dehydration / Deranged electrolytes
Joint swelling & Tenderness	Diarrhea > 3 episodes/day

NEW REGIMEN FOR TB:

Isoniazid + Rifapentin 1200 mg + Moxi + PZ

4 MONTHS

DIFFERENCE b/w ILEOCECAL TB & CHRONS:

1. Signs & Symptoms
2. TB involves both sides of intestine (Ileocecal valve)
3. TB → abdominal lymph nodes
4. TB → Fibrosis of cecum
5. TB → Caseating granulomas
6. TB → No skip lesions
7. TB → Response after 2 wks of Rx.
8. TB → circumferential ulcers (Chrons linear)

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Date

Rx of NTM:

- Rifampicin + Ethambutol + Klaricid

2 Years

INVESTIGATIONS IN POTTS DISEASE: Rx 9-12 Months

- MRI spine
- Definitive bone biopsy.

GIBBUS: sequie involvement of 3 or more vertebra.

PREGNANCY & TB:

- All 1st line drugs are safe except Streptomycin, Ethionamide.
- Can breastfeed.
- Baby: Prophylaxis ē INH - 6 Months + BCG Vaccine.

Date 13th Dec. 2022

COUGH AS BRONCHIECTASIS

- FVCC: frequency color Volume consistency.
- If symptom related to bleeding always ask:
  - Bleeding from any other orifice
  - Skin changes

D/D as of cough:

If Productive Sputum with blood: Also add

- Vasculitis

CSS ← Whistling sound in breath, Numbness of any part

Wegeners — Nasal deformity, hematuria

Good Pasture — hematuria

C.A.R.E of Bronchiectasis:

- TB
- Cystic fibrosis ← Recurrent chest infections since childhood; Diarrhea, growth retardation; Infertility; پسینے میں نمک کی مقدار زیادہ
- Smoking
- Cong. Immunodeficiency — Recurrent ENT, chest infections, multiple hospital visits

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Date

- Fungal Infection
- Lung abscess
- ABPA — upper lobe Bronchiectasis → Asthma unresponsive to Inhalers
- HIV
- AI — Sjogren
  IBD
  RA
  Ank. spondylitis
- Blood malignancy
- Yellow Nail Syndrome.
- Kartagner Syndrome ← Sinusitis, difficult to expectorate sputum, Infertility
- Young Syndrome —
- Transplant

COMPLICATIONS:

- (R) Heart failure ← Engorged neck veins, Yellow sclera, Pedal edema, Abd distension
- CO_2 Narcosis ← early morning headache, drowsiness, use of BIPAP, ICU admission, Mechanical Ventillation.
- Resp. failure
- Cyanosis, Pneumothorax, Pleural effusion
- Brain abscess — focal neurological deficit with high grade fever.

Date

Grades of clubbing:

1: Fluctuation d/t softening of nail bed
2: ↑ curvature of nails. Angle b/w nail & its bed is obliterated.
3: ↑ pulp tissue — drumstick or parrot beak
4: Hypertrophic osteoarthropathy. or both

D/D of Bronchiectasis:

- Reactivation of lung Infection ← TB, Pneumonia
- Lung abscess

Investigations:

- CBC - ↑TLC, Polycythemia 2° chronic Hypoxia
- ESR
- CXR — Tram track, honeycombing, ring formation, cystic changes, consolidation
- Sputum GS + C/S, AFB, Cytology.
- HRCT — 1-2 mm thick slices (Standard 10mm)

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Date

Types of Bronchiectasis:

(1) Cylindrical (2) Fusiform (3) Saccular

Mechanism of hemoptysis in Bronchiectasis:

- Bronchial ~~artery~~ wall become friable & sloughing causes hemoptysis by opening capillaries.

Bedside test for Bronchiectasis:

- Sputum examination shows 3 layers:
  (1) Frothy
  (2) Middle Thick or Liquid
  (3) Lower sediment (Epithelial debris & bacteria)

Most common agents causing Bronchiectasis:

Cystic fibrosis	Non-Cystic fibrosis.
S. aureus	H. Influenza
Pseudomonas.	

MC site: Left Lower lobe.

Date

- Bronchiectasis sicca:

Dry bronchiectasis — dry cough — intermittent episodes of hemoptysis. Commonly present in TB.

TREATMENT:

- Postural drainage — keep affected part up & percuss.
- Chest Physiotherapy.
- Breathing Exercise for airway clearance ← blow balloons. Nebulized Hypertonic Saline
- ABx for 2 wks — Penicillins, FQ, Doxycycline
- Preventive therapy — Azomax 250 mg for 1 year
- Inhaled Tobramycin
- Hemoptysis ← Bronchoscopy, Angioembolization, Surgery if pt is young & bronch. involves upper lobe.
- Mucolytics — N-acetylcysteine.
- Bronchodilators
- Vaccination.
- Surgery ← lobectomy; B/L extensive → lung transplant.

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Date

LUNG ABSCESS:

- MC site: upper lobe — Post. segment.
  Lower lobe — Superior or Basilar segment
- Organisms:
  Anaerobes — Peptostreptococcus
  Fusobacterium
  Bacteroides
  Prevotella
  Hence No value of c/s of Sputum

Sent c/s of:
- Transthoracic aspiration
- Pleural fluid
- Bronchoscopy & Brushing & lavage.

Xray: Cavity & air fluid level. surrounded by consolidation.

Rx:
- Amoxil + Flagyl IV or oral TDS
- 1st line: Clindamycin 600 mg IV 3 tds till improvement of s/s → then PO 300 QID
  OR Co-amoxiclav PO 3

DURATION: minimum 3 weeks or upto Resolution on Xray

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Date

COMPLICATIONS:
- Rupture
- Septicemia
- Empyema
  ↳ chest. tube drainage
- Bronchiectasis
- Fibrosis
- Cerebral abscess.

Unresponsive to Med. Rx:
- Percutaneous CT guided aspiration
- lobectomy
-

CLINICAL FEATURES OF CYSTIC FIBROSIS:
- Failure to thrive, Meconium ileus.
- Recurrent chest infections.
- Cough & profuse expectoration.
- Diarrhea, steatorrhea, malabsorption.
- Diabetes
- Infertility in males d/t cong. absence of Vas

- Spirometry → obstructive defect, may be Restrict
- Early CF → may present as COPD on CXR
  Hyperinflated lung fields.

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Date

- Sweat cl Test ↑60 mmol/L.
  ↓ If ⊖ CF not ruled out, If high suspicion CFTR gene testing.

Rx of CF:

- Gen. Measures ← Quit Smoking
  Nutrition
  Fat soluble vitamin
  Vaccinations
- Chest Physio, Postural drainage, Mucolytics
- Inhaled Bronchodilators, Steroids (LABA+ICS)
- Recombinant human DNase 2.5 mg Nebs.
- Antibiotics ← Active Infection
  Prophylaxis – Azithro 500 3xwk
- Ivacaftor
  ↳ Oral → Potentiator of CFTR channel.
- Pancreatic enzyme Replacement
- Rx of osteoporosis, arthritis, sinusitis, infertility
- Heart, lung or lung transplant.
- Family Screening.

Date

Multiple lung abscess:

S. aureus — Fungal
Klebsiella — Aspiration of infected material
Anaerobiasis

Effect of Posture on aspiration:

Upright position → Basal segment
Lying → Post. seg of UL
→ Sup. seg of LL

Most common lobe → (R) middle.

NECROTIZING PNEUMONIA:

- Formation of multiple lung cavities with superimposed infection. Poor prognosis.

PROGNOSIS OF BRONCHIECTASIS:

- Morbidity high.
- With good medical care → 39-40 years average survival of CF pts c CF.

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ILD

SHORTNESS OF BREATH

Date 16½ Dec. 2022

D/D:

- Cardiac — chestpain, Pink frothy Sputum, Pedal edema, Monthly IM inj, valvular Heart disease, NDMG use, Dental procedure. high or low grade fever
- Respiratory — Pneumonia, Asthma, COPD, Bronchiectasis, Malignancy, TB, Pleural effusion, Chronic thromboemb., Auto Immune/ILD/ Sarcoidosis.
- Renal
- Thyroid
- Neuro
- Blood.

C.A.R.E of Lung Fibrosis

RISK FACTORS/ETIOLOGY:

- Occupation exposure to Gases, fumes, Dust, Birds, Pets
- Mines
- Radiation, Chemo
- Amiodarone, MTX, Septran
- AI
- Sarcoidosis
- Ankylosing Spondylitis
- Vasculitis
- TB or TB contact.

COMPLICATIONS:

- Cyanosis
- Hospital admissions
- Cor Pulmonale
- 10 fold ↑risk of Ca
  - Lung Question
  - Paraneoplastic
  - Hemoptysis/ lumps/ wt loss/ Hoarseness
- Neck veins ensorg, Jaundice, Abd distension, Pedal edema

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Date

- Only 25-50% of ILD has clubbing
  Reference Gautam Mehta.
- Always check Expansion from back side.

LUNG FIBROSIS

- Idiopathic — are called DIP or DPLD.
- Known causes
  - Infective: TB, fungal, Viral
  - Occupational Exposure
  - Chemo/Radio
  - Drugs → CBC shows ↑ Eosinophilia
  - Auto Immune → RA, SLE, SS, Sjogren, Polymyositis/Dermato
  - Sarcoidosis
  - P.A.I.R
  - Vasculitis
  - Congenital
  - Extrinsic Allergic Alveolitis

- BAL specimen → ↑ lymphocytes → Steroid Responsive
  → ↓ " → Unresponsive.

Pharmevo

Date

ATS CLASSIFICATION OF DIFFUSE INTERSTITIAL PNEUMONIA:

- UIP — Resp. Bronchiolitis assoc. ILD
- AIP — Lymphocytic I.P
- NSIP — Desquamating I.P
- COOP

- Most common — UIP other name IPF.
- HRCT
  - Honeycombing — UIP
  - Ground glass — All except UIP
- 25% cases of UIP has (+) ANA or RA factor.
- Young — AIP, Resp. Bronchiolitis
- Old age — UIP, COOP
- Steroid Responsive → All except UIP
- Rx:
  - Steroids
  - Perfenidone 267 mg 3 — Ci in ESRD & CLD.
  - Nintedanib — 1K1 — 150 mg 2 — Can be given in ESRD. Can't in CLD.

  → No improvement in life span.
  Only improves quality of life.

Date

- UIP
  - Poor prognosis.
  - Survival 3 years.

  Other DIPs — 5-10 yrs survival
- Association ē Smoking — UIP.
- Fine crepts + Wheeze → obstruction of small airways produces Squeeks.
- Complications:
  - Infections
  - Pulmonary HTN
  - Ca lung
  - Respiratory Failure.

FIBROSIS:

	APICAL	BASAL	BILATERAL
B	Berylliosis	IPF	IPF
R	Radiation	CTD	CTD
E	EAA	Drugs	Drugs
A	ABPA	Asbestosis	Occupational
S	Silicosis		
T	TB		
C	Coal worker		
L	Langerhans Histiocytosis		
A	Ankylosing Spond.		
P	Psoriasis		

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Date

RECENT ADVANCES:

- Marker — Keratin one → present in terminally differentiated cells → Deficiency causes fibrosis.
- Pentraxin protein-2 → Improve 6 min walk test in pts ē pulmonary fibrosis.

DEFINITIVE Rx OF IPF:

- Lung Transplantation — Preferred Single
  Can be done - double

Survival:

1 year 75%.

5 year 50%.

- With corpulmonale — Heart lung Transplant.

. 25% of pts ē COP has obstructive pattern in PFTs—

	NORMAL	
FEV_1	4L	Both should be >80%
FVC	5L	
PEFR	400-600 l/m	

Date 19th Dec. 2022

LUNG CARCINOMA AS COUGH

C.A.R.E:

RISK FACTORS:

- Smoking, Alcohol
- Family h/o Malignancy
- Exposure of Deasel Exhaust
  Metal exposure
  Dust, fumes
- Chronic lung disease

COMPLICATIONS/ASSOCIATIONS: MASS EFFECT/PARANEO/METS

Paraneoplastic — Lambert Eaton — Weakness improves ē activity, Dry mouth, Palpitations

- Hyperparathy — constipation, Polyuria, Bone pain
- Polymyositis/Dermatomyositis
- Cushing — weight gain, ↑ body hair, Newly Δ DM, HTN, Abd striae.
- SIADH — Generalized weakness

Metastasis or Complications

- ALOC, fits, headache
- Horners — Ptosis, diplopia
- Hoarseness of voice, Dyspnea, Dysphagia
- Marantic endocarditis
- Jaundice, (R)HC heaviness, ascites
- Abd distension
- Gait disturbance, Numbness of hands, small muscle wasting
- SVC obstruction

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LUNG CA:

- 2nd mc cause of cancer worldwide.

TYPES:

- Small cell
- Non Small cell — Adeno, Squamous, Bronchoalveolar → Copious sputum — large cell

INVESTIGATIONS:

- CBC + ESR
- Sputum → specific: GS+CS, AFB, Cytology
- Bone scan
- U/C/E
- CT chest
- ± IV contrast
- CT A/Pelvis
- LFTs
- Bronchoscopy - Biopsy
- MRI brain
- PET
- PFTs
- CXR

ROUTES OF BIOPSY:

- Excisional lymph node biopsy
- CT guided lung biopsy.
- Bronchopic guided biopsy → Transbronchial.
- Fiberoptic biopsy < Brushings → ē 10ml N/S; Lavage → ē 40-50ml N/S
- Transesophageal endoscopic biopsy.
- Flourescence bronchoscopy.
- Electromagnetic navigation biopsy.
- Thoracotomy - VATS
- Open lung biopsy.

Date

- Drawback of PET scan:
  - False ⊕ in Granul. disease — TB, sarcoidosis
  - Resolution < 1cm
  - Don't detect brain mets.

- PFTs BEFORE SURGERY:
  - FEV_1 < 2L — No Pneumonectomy (should be >2L)
  - FEV_1 < 1.5L — No Lobectomy
  - Pre op risk assessment.

- SCREENING: Low dose helical CT scan.
  - Smoker, 20 packyear
  - Age > 50yrs

CENTRAL	PERIPHERAL
Squamous	AdenocA
Small cell	Large cell

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Date

Rx:

- **SMALL CELL CARCINOMA:**

LIMITED DISEASE	EXTENSIVE DISEASE
• Unilat. hemithorax • Contralat. Med. LN	• Contralat. Hemithorax • Pleural effusion
↓	↓
- Cisplatin & Etoposide. - Thoracic Radiotherapy + Prophylactic Cranial RT.	- Cisplatin + Etoposide + Atezolizumab - Radiotherapy - Pain manag. - Pleural effusion treat - Brain Radiotherapy.
↓	↓
Survival: 20 months	Survival: 8 months.

- **NON SMALL CELL CARCINOMA:**

Stage		
I	$T_0N_0M_0$	Monitory via Helical CT scan.
II	$T_1N_0M_0$	Resection (or) Radiotherapy.
III	$T_2 \pm N_1M_0$	Resection (and) chemotherapy (or) Radio
IV	N_2 or M_1	Chemo, Palliative, Immunotherapy

SURGERY:
- Lobectomy
- Segmentectomy
- Veg-Resection

CHEMOTHERAPY:
- Cisplatin + Gemcitabine + Bevacizumab
- Cisplatin + Etoposide + Bevacizumab

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Improves both.

IMMUNOTHERAPY: Survival + Quality of life

- Epidermal Growth factor Receptor (+)
  - Osimertinib
- PD1 inhibitors (check point inhibitors)
  - Atezolizumab
  - Pembrolizumab
  - Nivolumab

S.E: Activation of immune system
- Hepatitis
- Thyroiditis
- Pneumonitis

- K-RAS (+)
  - Sotorasib

CONTRAINDICATIONS OF SURGERY:
- Malignant Pleural effusion
- Involvement of heart, Pericardium, Recurrent laryngeal nerve → i.e Mets.
- Multiple comorbids
- FEV1 < 1.5 L (Baliga)
  < 0.8 L

INDICATIONS OF RADIOTHERAPY:
- Brain involvement.
- Unresolving bone pain
- SVCO
- Compression effects → Dysphagia, Hoarsness, Dyspnea.

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ANTIBODIES:

Yo	cerebellum
Hu	sensory
Ri	opsoclonus-myoclonus, brainstem encephalitis, Paraneoplastic cerebellar degeneration.

DIFFERENTIATE b/w PRIMARY LUNG CA AND METASTATIC CA FROM OTHER ORIGIN:

↳ Tumor marker of that site.

Primary Tumor Markers → TTF-1 (Thyroid Transcription factor)
Napsin A
↳ can also be + in Renal but more imp for lung CA.

Rx OF MESOTHELIOMA:

Cisplatin + Gemcitabine + Bevacizumab

PROGNOSIS:

Small cell	1-2 years survival.
Non-Small cell	1-60 %. 5 year survival depend on stage & pathology

If mutation (+) better prognosis.

Date

PARANEOPLASTIC:

Squamous cell	— Hypercalcemia & HPOA (less) 2° ↑ production of PTHrP.
Adeno ca	— Acanthosis nigricans HPOA, Gynaecomastia
Small cell	Cushing, SIADH, Lambert, Eaton, Neuropathy, Polymyositis, Cerebellar Dermatomyo.

Small cell — worse prognosis.
Large cell — slightly better than Small cell.
Adeno ca — better prognosis.

EXAMINATION:

Hands:	Clubbing, Nicotine staining, Palmar Eryth, bounding pulse, Flaps, atrophy of muscles.
Arms:	Striae, Bruises, Muscle weakness, HPOA
Face & Neck:	Hirsutism, A, J, Horners, Oral thrush, Moon like face, Trachea, Cricosternal distance.
CVS, Abdomen, Chest.	
Neuro:	Sensory neuropathy - Middle finger & Little finger.
Gait:	
Fundoscopy:	CO_2 Retention

Date

AIR TRAVEL:

- Oxygen Requirement < 4 Lit - can travel
- Hypoxia challenge test if > 4 Lit.

TNM CLASSIFICATION/STAGING OF LUNG CA

T_x	Tumor in sputum/bronchial washings but not be assessed in imaging or bronchoscopy.
T_0	No evidence of tumor
T_{is}	CIS
T_1	≤ 3 cm not involving main bronchus.
T_2	> 3 lo ≤ 5 cm
T_3	> 5 lo ≤ 7 cm or, involvement of chest wall, pericardium, phrenic nerve.
T_4	> 7 cm or invasion of mediastinum, diaphragm, heart, great vessels, Recurrent laryngeal nerve, carina, trachea, esophagus, spine.
N_1	Ipsilateral peribronchial, hilar & intra pulmonary nodes.
N_2	Ipsilateral mediastinal, subcarinal nodes
N_3	Contralateral " or hilar, Ipsilat/Contralat scalene, Supraclavicular.
M_0	No Mets
M_1	Mets

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Date 20th Dec. 2022

PNEUMONIA

AS

- CHESTPAIN/COUGH + FEVER

D/D of chest pain:

1. Cardiac
   - MI — DM, HTN, Dyslipidemia, Family h/o early cardiac death, cP ↑ on exertion
   - HF — ↓ on rest, epigastric pain, cocaine use
   - Aortic dissection — chest pain radiating to back.
   - Valvular Heart Disease
   - Infective Endocarditis
   - Pericarditis — ↑ on lying down, ↓ on sitting up & leaning forward
2. Respiratory
   - Pneumonia
   - TB
   - Malignancy
   - Pleural effusion
   - Pulmonary Embolism
   - Asthma / COPD.
3. GIT
   - GERD
   - PUD
4. Trauma
5. Costochondritis — [illegible]
6. Herpes Zoster — Vesicular Rash
7. Fibromyalgia — Pain other parts of body.

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C.A.R.E OF PNEUMONIA:

RISK FACTORS:

- URTI
- Immunosuppression
  - High risk sexual behaviour
  - Chronic steroid use
  - IV drug abuse
  - Immunosup./chemotherapy
  - Δ of cancer
  - Prolonged Hospitalization
  - Hyperglycemia
  - Alcoholism
  - Splenectomy.
- Poor dental hygiene
- Stroke, fits
- Aspiration of gastric contents
- Mechanical vent.
- Chronic lung disease.
- Bird, animal exposure (Psittacosis, Coxeilla etc)
- Travel, (Legionella), Ship Travel.
- Exposure to diagnosed case of Covid/Viral

COMPLICATIONS:

- Cyanosis
- ALOC
- Lung abscess
- Mechanical vent/ICU admission.
- DIC/Septicemia
- Pleural effusion/Empyma.
- Afib – Palpitations

Date

INVESTIGATIONS:

- CBC
- U/C/E
- LFTs
- CXR
- Sputum ← GS+CS, AFB, Cytology
- Covid PCR
- H,N,
- BLCs
- Influenza
- Urinary Antigen (↑ in → Legionella, Streppneumo)
- Procalcitonin
- CRP

CLASSIFICATION OF PNEUMONIA:

Typical: High grade fever, cough, Sputum

Atypical: Abd pain, diarrhea, Jaundice

- CAP — S. pneumo, H-Inf, Influenza, RSV, Covid
- Nosocomial
  - HAP – within 48hrs of hosp. admission
  - VAP ← early – 48 hrs of Intubation
    late – 1 wk

CURB-65:

		Mortality	
Confusion	0–1	1.5%	OPD
Urea ≥ 19 mg/dL ≥ 7 mmol/L	2	9.2%	Inpt vs
R/R ≥ 30			
BP ≤ 90/60	≥ 3	22%	Admission
Age ≥ 65			ICU → 4 or 5

New drug for MRSA → Teicoplanin.

Moxi has no antipseudomonal cover.

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EMPIRIC Rx FOR CAP (CMDT)

Date

OUTPATIENT:

HEALTHY

- Amoxicillin or
- Doxycycline or
- Macrolide
- Macrolide Resistance: β-lactam + Macrolide/FQ

CO-MORBIDS

- Macrolide or Doxy
  +
  Oral β lactam (Augmentin, Cefpodoxime, Cefuroxime)
- Oral FQ

INPATIENT:

NON-SEVERE PNEUMONIA

- FQ (oral or IV) or
- Macrolide +
  β lactam
  - Oral: Aug/Cefpod/Cefuroxime
  - IV:
    - Amp. Sulbactam
    - Cefotaxime
    - Ceftriaxone
    - Ceftaroline
- MRSA - Vanc or linezolid
- P. Aeruginosa - Tazo
  Cefepime
  Imipenem
  Meropenem
  Aztreonam

SEVERE PNEUMONIA

- Azithro or FQ
  +
  IV β lactam
- Allergy to β lactam
  FQ + Aztreonam
- MRSA
- Pseudomonas
- P. Aeru. Risk + Critically ill
  ↑ drug Resistance

  Add
  - FQ
  - Aminoglycoside.

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Date

- Rx duration : 5-7 days
- Xray Resolution: 6 weeks.

PREVENTION OF PNEUMONIA:

- Previnar – PCV 13 → Immunocompromised Age > 65 then after 5 yrs booster of Pneumovax
- Pneumovax – PCV 23 → Chronic disease Age < 65
- Influenza vaccine – yearly.

INDICATIONS OF ICU ADMISSION:

- Shock
- PF Ratio ($PaO_2 : FiO_2$) < 250
- PO_2 < 60

WHEN TO DISCHARGE:

- SPO_2 > 90 %
- Improved s/s - 12 hrs
- WBC < 12
- Willing to follow as outpatient.
- C/S ⊖
- Pulse < 100
- R/R < 24

NON-RESOLVING PNEUMONIA:

- After 10 days of Max. Rx – No Improvement in S/S
- After 12 wks of Rx – Radiological worsening or no improvement.
- Agents: MRSA, fungal, NTM.

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PROGNOSIS:

- Mortality of HAP — 20-50%. VAP >50%
  CAP — 10-12%

BRONCHOSCOPIC CRITERIA FOR STOPPING ANTIBIOTICS:

BAL C/S < 10000 colony forming units/mL
Bronching washings or blind C/S < 1000 CFU/mL

RISK FACTORS

- ABx use in previous 3 months → ↑ DRUG RESISTANCE
- Recurrent hospitalizations
- Past H/O Pseudomonas } P. AERUGINOSA
- Chronic lung disease
- Dialysis in last 30 days
- Past H/O MRSA } MRSA
- ABx use in last 90 days
- Acute Renal Replacement therapy } MULTI DRUG RESISTANCE
- ARDS > 5 days

Date 23rd Dec. 2022

PLEURAL EFFUSION AS SHORTNESS OF BREATH

CAUSES OF PLEURAL EFFUSION:

- Parapneumonic
- Pulmonary TB
- Malignancy < lung / lymphoma
- Auto Immune < SLE / RA
- T. Heart failure
- T. Nephrotic Syndrome
- T ⊙ Cirrhosis
- Pulmonary infarction (embolism) — exudative 20% / transudative
  ↳ Prolong immobilization
- T. Chronic constrictive Pericarditis
- ⊙ Not included in D/D of SOB.
- T ⊙ Malnutrition
- T. Hypothyroidism
- T ⊙ Ovarian cA.
- ⊙ Yellow nail Syndrome
- ⊙ Acute Pancreatitis
- ⊙ Drugs
- ⊙ Radio, Chemotherapy
- ⊙ Lung abscess.
- T. Rheumatic fever

COMPLICATIONS:

- Cyanosis
- ICU admission
- Vent / NIV
- Chest tube placement.

Date

INVESTIGATIONS:

- CBC - U/C/E - LFTs - CXR
- Sputum - Pleural fluid ↑ DR/GS, ADA, cytology
- Pleural biopsy -
- Just A/c to cause - CT chest ± pleural phase - contrast enhancement.

Pleural tap:

- upper border of lower rib.
- 22 Gauge needle
- Collect: 5 ml for Biochemistry
  20 ml for Microbiology
  50 ml minimum for cytology.

- Normal Pleural fluid: 5-15 ml
- Detect clinically: 500 ml
- PA view CXR: 200 ml
- Lateral Decubitus: 100 ml
- U/S: > 20-25 ml.
- Angle obliterated: ≥ 200 ml.

Date

PLEURAL FLUID ANALYSIS

	NORMAL
Color	clear
Protein	1-2 g
Glucose	as Serum
WBCs	1000 - 5000
pH	7.6

PATHOPHYSIOLOGY:

- ↑ Hydrostatic pressure
- ↓ colloid oncotic pressure
- Impaired lymphatic drainage
- Impaired membrane permeability.

EMPYEMA VS CHYLOTHORAX:

Settles on centrifugation ↳ Doesn't settle.

BLOOD TINGED: 5-10,000 RBC

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Date

AMYLASE IN PLEURAL FLUID:

- Acute Pancreatitis
- Esophageal Rupture
- Carcinoma

INVESTIGATIONS FOR TB:

- ADA levels. > 60
- Pleural fluid c/s – 20-50%.
- Pleural biopsy – single – 60%.
- Pleural biopsy x3 + c/s – 90%.

INDICATIONS OF CHEST TUBE DRAINAGE:

- Massive Pleural effusion
- Resp. distress
- Empyema
- LDH > 1000
- Glucose < 60
- Loculated ← Intrapleural DNASE? / Streptokinase / Decortication
- pH < 7.0
- GS ⊕ c/s

Date

HEMOTHORAX:

- Small – Resolve spontaneously
- Large – Chest tube.

VERY LOW GLUCOSE LEVELS:

- Empyema
- RA

MALIGNANT PLEURAL EFFUSION:

- Treat malignancy – chemo, Radio
- Thoracocentesis
- Pleurodesis (Talc, Bleomycin).
- Keep catheter for long term.

HEMOPTYSIS

Date

- Onset, duration, Intensity, Progression, Quantity
- Continuous or episodic
- Cough with blood or cough with blood + Sputum ← Quantity, smell, color

D/D:

1. Acute Bronchitis / Pneumonia
2. Tuberculosis
3. Bronchiectasis / Lung abscess
4. Malignancy
5. Vasculitis ← CSS, GPS, Wegeners
6. Alveolar Hemorrhages — SLE
7. Pulmonary Embolism
8. Aspergilloma — whistling sounds, unresponsive to Inhalers
9. Pulmonary edema
10. Mitral stenosis
11. Chronic kidney or chronic liver disease
12. Drugs
13. Coagulopathy ← Hereditary, Plt disorders.
14.

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